

Fire Resistance Testing

CONFIDENTIAL

Report: Chilt/RF13171 AR1

A fire resistance test performed on a double leaf single acting steel access panel and a single leaf single acting steel access panel

Test conducted in accordance with BSEN 1634-1: 2008 and BSEN 1363-1: 1999

Test date: 30th July 2013

Prepared for:
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The details of the sponsor of test report Chilt/RF12087 are held on file by Chiltern International Fire Ltd. This report is additional to that issued as Chilt/RF12087 on 13 July 2012 and the original report shall remain valid and is not replaced by the additional report.



Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This document is confidential and remains the property of Chiltern International Fire Ltd. The legal validity of this report can only be claimed on the presentation of the complete report.



BM TRADA – the new name for Chiltern International Fire Ltd

From July 1st 2013, Chiltern International Fire Ltd commenced trading under the name of its parent company BM TRADA and at the same time adopted a brand new visual identity.

Historically, the group has delivered its services through a number of individual companies: BM TRADA Certification Ltd, TRADA Technology Ltd, Chiltern International Fire Ltd (including Chiltern Dynamics) and a network of international offices. Both BM TRADA Group and these individual companies will now trade under the same name - BM TRADA - and adopt the new visual identity.

To coincide with this change, our Technical Reports, Test Reports, Products Assessments, company stationery and marketing collateral have been re-designed to carry the new branding and visual identity.

The validity of all documents previously issued by the individual companies including certificates, test reports and product assessments is unaffected by this change and a letter to this effect will be available to download from our website www.bmtradagroup.com.

About BM TRADA.

With origins dating back to 1934, we have a deep history and services which are highly valued by our customers. We offer independent certification, testing, inspection, training and technical services around the world. In all these areas we continue to use industry-leading experts in their chosen fields to develop and deliver services – an ethos that has been at the heart of our approach since we began.

In all these areas we use industry-leading experts in their chosen fields to develop and deliver services – an ethos that has been at the heart of our approach since we began.

A recent review of our businesses and customers revealed that the individual identities sometimes make communications confusing, and that in an already complex business area, clarity and simplicity in communications is rare, but valued. It also revealed that a single identity and combined offer would help us strengthen our appeal.

With this in mind, we brought the companies together under the name BM TRADA and took the opportunity to create a fresh new visual identity.

We have modernised our image and combined our strengths. However, our values, our people and the integrity of our services remain the same. I hope you will welcome these changes and the improvements they will bring.



Jon Osborn
Chief Operating Officer

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1 Summary of performance

The following performance was achieved from the specimens tested. Full details of the testing and specimen construction are described in the report.

Results:

Fire resistance test in accordance with BSEN 1634-1: 2008 and BSEN 1363-1: 1999

Access panel A

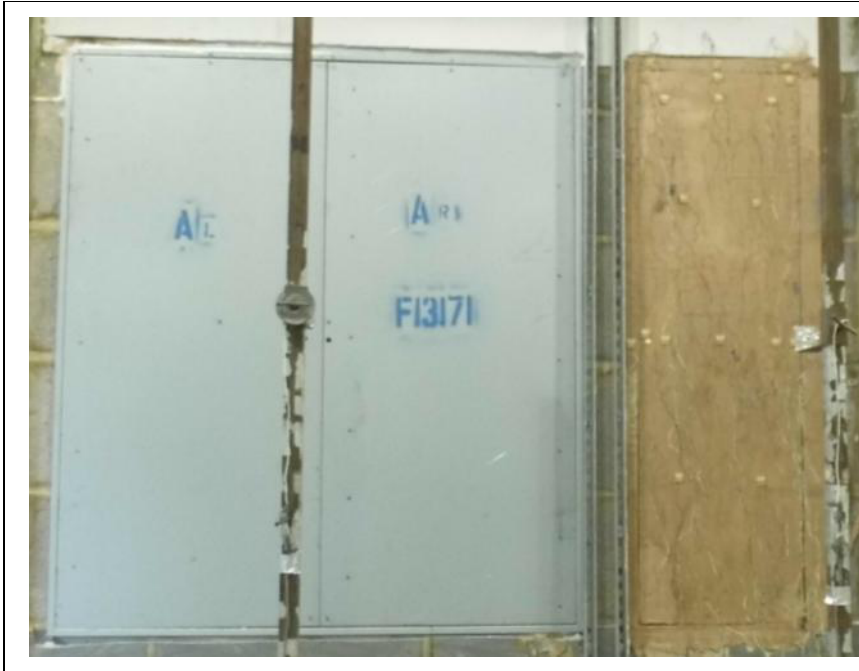
Integrity	
Cotton pad	132 (one hundred and thirty two) minutes*
Continuous flaming	132 (one hundred and thirty two) minutes*
Gap gauges	132 (one hundred and thirty two) minutes*
Insulation	The specimen was not evaluated for insulation
Radiation – time to 15kW/m²	57 (fifty seven) minutes

* No failure of the test criteria had occurred at termination of the test at 132 minutes

Access panel B

Integrity	
Cotton pad	132 (one hundred and thirty two) minutes*
Continuous flaming	132 (one hundred and thirty two) minutes*
Gap gauges	132 (one hundred and thirty two) minutes*
Insulation – 1 discrete area	
Average set	38 (thirty eight) minutes
Maximum ≥ 100mm in from leaf edge	35 (thirty five) minutes
Maximum ≥ 25mm in from leaf edge	18 (eighteen) minutes
Door frame ≥ 180°C temp rise	24 (twenty four) minutes
Door frame ≥ 360°C temp rise	36 (thirty six) minutes
Radiation – time to 15kW/m²	132 (one hundred and thirty two) minutes*

* No failure of the test criteria had occurred at termination of the test at 132 minutes



Summary of specimens:

A double leaf single acting steel access panel and a single leaf single acting steel access panel

Access panel A - leaf size:
1995mm high x 895mm wide x
28mm thick

Access panel B - leaf size:
1995mm high x 595mm wide x
28mm thick

2 Introduction

The Access Panels were installed into a medium density concrete blockwork construction. In accordance with BS EN 14600: 2005 the leaves were pre-cycled before the fire test. Access panel B was instrumented with the standard and supplementary sets of thermocouples. Both access panels were installed opening away from the furnace.

3 Specimen verification

The access panels were delivered to BM TRADA during July 2013. The component parts of the access panels were identified based on nominal information provided by the client. The conformity of the specimens against these nominal values has been verified and agreed by the laboratory insofar as the structure of the specimen allowed verification to take place. If possible, additional moisture content readings, species verification and density checks were performed on either the original specimen, or, samples provided by the sponsor. These details are outlined in the construction section of this report (section 6).

3.1 Conditioning

BM TRADA stored the specimens in climatic conditions approximate to those in normal service.

3.2 Sampling

BM TRADA was not involved in factory sampling of the components used for the specimens subject to this report.

4 Description of supporting construction

The supporting construction comprised a 150mm thick medium density concrete blockwork wall built in accordance with BSEN 1363-1: 1999.

5 Description of specimens

Details of the specimens are shown in Figures 1 to 6 of appendix 1.

5.1 Access panel leaves

The left access panel was designated A and the leaves measured 1995mm high x 895mm wide x 28mm thick; the right access panel was designated B and the leaf measured 1995mm high x 595mm wide x 28mm thick.

6 Description of construction (refers to Figures 1 to 6 of Appendix 1)

Leaf – access panel A

	Material	Dimensions (mm)	Key to figures
Facing	Zintec steel tray profile including a 43mm wide integral astragal	1.2 thick	1
Top and bottom rails	Non fitted	-	-
Hanging stile	Profiled Zintec steel	1.2 thick x 27 high x 44 wide spot welded to the unexposed facing at 300mm centres	2
Meeting stile – left leaf	Profiled Zintec steel	1.2 thick x 38 high x 96 wide spot welded to the unexposed facing at 300mm centres	3
Meeting stile – right leaf	Profiled Zintec steel	1.2 thick x 22 high x 94 wide spot welded to the unexposed facing at 300mm centres	4
Core	None fitted	-	-

Leaf – access panel B

	Material	Dimensions (mm)	Key to figures
Facings	Unexposed face	Type 'F' plasterboard finished with a nominally 3mm thick skim of plaster	5
	Exposed face	Zintec steel lid profile	6
Meeting edge	Profiled 'C' section Zintec steel	1.2 thick x 28 high x 25 x 20 fixed to the exposed facing with 14mm long wafer head screws at 300-400mm centres	7

Door frame – access panel A

	Material	Dimensions (mm)	Key to figures
Head, jambs and threshold	Profiled Zintec steel	1.2 thick x 56 deep x 34 wide including a 10 high x 27 wide integral stop and 24 wide architrave	8
Head to jamb jointing detail	Mitred – welded	-	-
Frame fixings (see figures 2 and 3)	6No. Spax masonry fixings per jamb, 2No. Spax masonry fixings per horizontal fitted 50-80mm from corners	80 long	-
Frame fire stopping	Intumescent mastic on both faces	5-10 wide sealing frame to supporting construction on the exposed face	9

Door frame – access panel B

	Material	Dimensions (mm)	Key to figures
Head, closing jamb and threshold	Profiled Zintec steel with a nominally 3mm thick skim of plaster on the unexposed face	1.2 thick x 67 deep x 37 wide including a 12 high x 37 wide integral stop and a 25 wide architrave	10
Hanging jamb	Profiled Zintec steel with a nominally 3mm thick skim of plaster on the unexposed face	1.2 thick x 67 deep x 35 wide including a 25 wide architrave	11
Head to jamb jointing detail	Mitred – welded	-	-
Frame fixings (see figures 2 and 3)	6No. Spax masonry fixings per jamb	80 long	-
Architrave – integral	Profiled Zintec steel	25 wide on unexposed face	-
Frame fire stopping	Intumescent mastic on both faces	10 wide sealing frame to supporting construction on the exposed face	12

Intumescent and sealing materials – access panel A

	Make/type	Size (mm)	Location	Key to figures
Leaf edge – right leaf only	Envirograf intumescent seal Product reference: G8/10	10 x 2	Fitted on the unexposed face of the astragal	13
Frame reveal – head and threshold only	Envirograf intumescent seal Product reference: G8/10	10 x 2	Fitted to the upstand of the stop on the frame head and threshold only	14

Intumescent and sealing materials – access panel B

	Make/type	Size (mm)	Location	Key to figures
Leaf edge – hanging edge only	Envirograf intumescent seal Product reference: G8/10	10 x 2	Fitted on the hanging edge only	15
Frame reveal – closing edge, head and threshold only	Envirograf intumescent seal Product reference: G8/10	10 x 2	Fitted to the upstand of the stop on the frame closing edge, head and threshold only	16

Hardware – access panel A

	Make/type	Size (mm)	Location	Key to figures
Hinges	Gold and Wassell Continuous piano hinge welded to leaf facing and bolted to frame Product reference: 16285	43 wide x leaf height (blade size)	-	17
Closer	None fitted	-	-	-
Lock – engaged	Budget lock with top and bottom Ø8mm shoot bolts Product ref: EMKA-1049-U2	110 x 38 (lock body size)	Fitted 1000mm from the head of the leaf	18
	Banghe - Henguide Shoot bolt guide blocks	20 high x 17 wide x 16 deep	Fitted 25mm, 315mm, 630mm, 855mm, 1130mm, 1400mm, 1710mm and 1970mm from the head of the leaf	19

Hardware – access panel B

	Make/type	Size (mm)	Location	Key to figures
Hinges	5No. Intrepid Manufacturing Ltd engineered hinge Product ref: PB Hinges	-	Fitted 100mm, 510mm, 1000mm, 1500mm and 1920mm from the head of the leaf	20
Closer	None fitted	-	-	-
Lock – engaged	Budget lock with top and bottom Ø8mm shoot bolts Product ref: EMKA-1049-U2	110 x 38 (lock body size)	Fitted 1000mm from the head of the leaf	21
	Banghe - Henguide Shoot bolt guide blocks	20 high x 17 wide x 16 deep	Fitted 25mm, 375mm, 750mm, 870mm, 1150mm, 1300mm, 1625mm and 1970mm from the head of the leaf	22

7 Pre-test measurements

7.1 Pre-cycling

Operability test of 25 manual cycles was completed on each access panel in accordance with BSEN 14600, section 5.1.1.1.

Minimum angle of opening	90°
Number of operation cycles completed	25

7.2 Access panel leaf/frame perimeter gaps

The manufacturer did not declare a working range so the leaves were installed to open and close freely, maintaining gaps, where possible, to a range of 2-4mm along all edges except the threshold, and 3-8mm along the threshold. The gaps between the edge of the panels and frame were measured prior to test. A total of 33 readings were taken. The measurements (in mm) are given in Figure 5 of Appendix 1.

7.3 Closer forces

No closers were fitted to the access panel.

7.4 Method of installation

The access panels were fixed into pre-prepared openings. The details of the fixings and fire stopping between frame and supporting construction are outlined in the construction section and Figure 4 of Appendix 1. The exposed faces of the panels were flush with the unexposed face of the supporting construction.

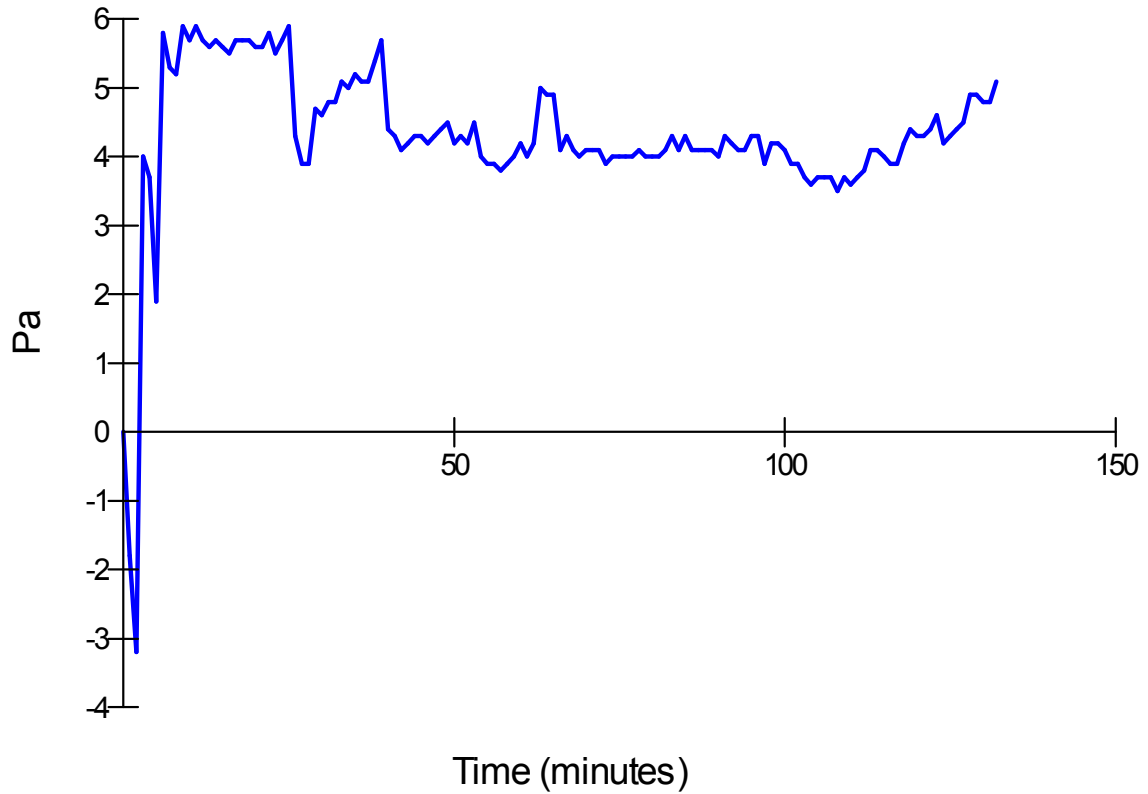
8 Test conditions

8.1 Ambient temperature

The ambient temperature of the test area at commencement of test was 20°C.

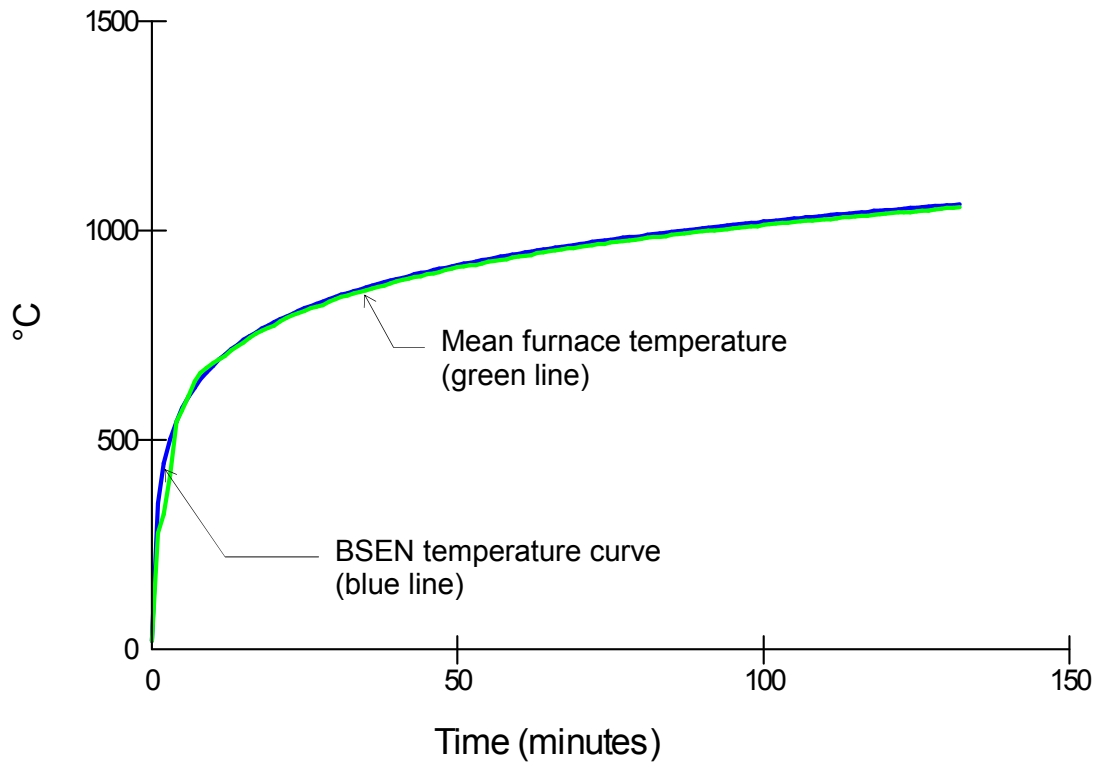
8.2 Pressure readings

After the first 5 minutes of the test, the furnace pressure was maintained at 4.7 ± 5 Pa and after 10 minutes was maintained at 4.7 ± 3 Pa with respect to atmosphere, equating to 20Pa at the head of the access panels. The pressure readings were recorded and tabulated in appendix 2 and are shown graphically below:



8.3 Furnace temperature

The furnace was controlled to follow the temperature/time relationship specified in BSEN 1363: Part 1: 1999 Section 5.1.1 as closely as possible, using the average of nine plate thermometers suitably distributed within the furnace. The temperatures recorded have been tabulated in Appendix 2 and are shown graphically below:



8.4 Unexposed face temperatures

The temperature of the unexposed face was monitored by means of the following thermocouples:

Access Panel A

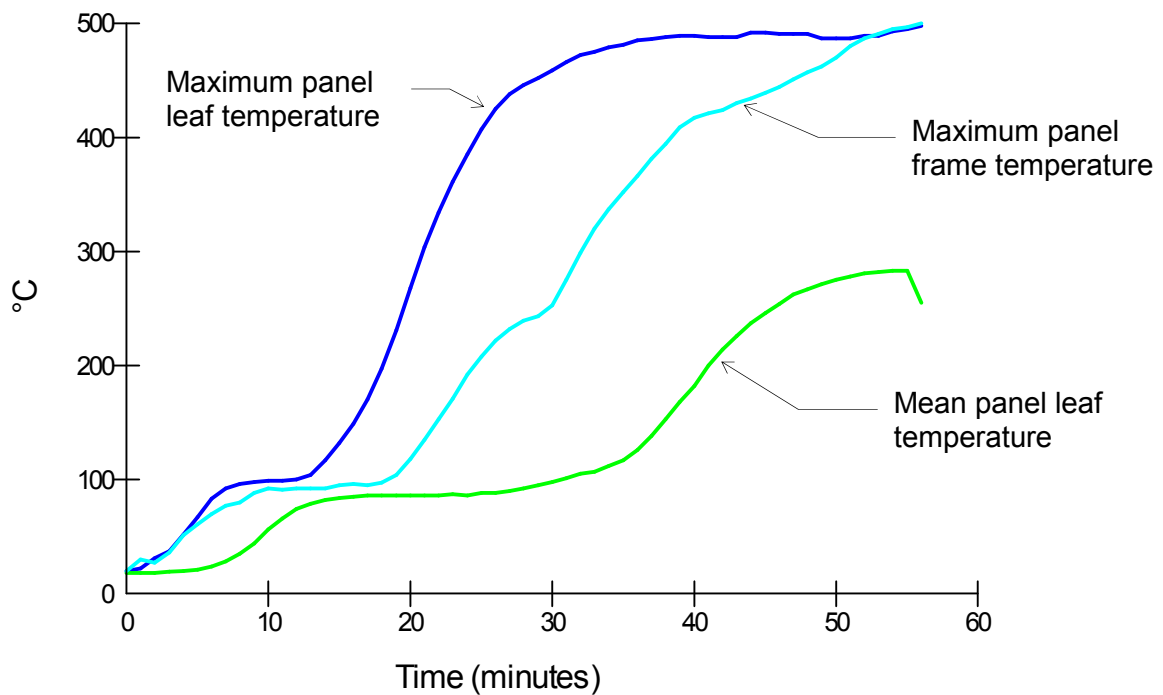
The specimen was declared to be uninsulated therefore no thermocouples were fitted

Access Panel B

	1 discrete area	
Leaf	Discrete area (plaster)	5 measuring mean temperature rise. 5 measuring maximum temperature rise, standard set 100mm in from the panel leaf edges. 5 measuring maximum temperature rise, supplementary set 25mm in from the panel leaf edges.
Frame		5 measuring maximum temperature rise.

The location of the thermocouples are shown in Figure 6 of Appendix 1. The temperatures recorded are tabulated in appendix 1 and are shown graphically overleaf:

Access panel B

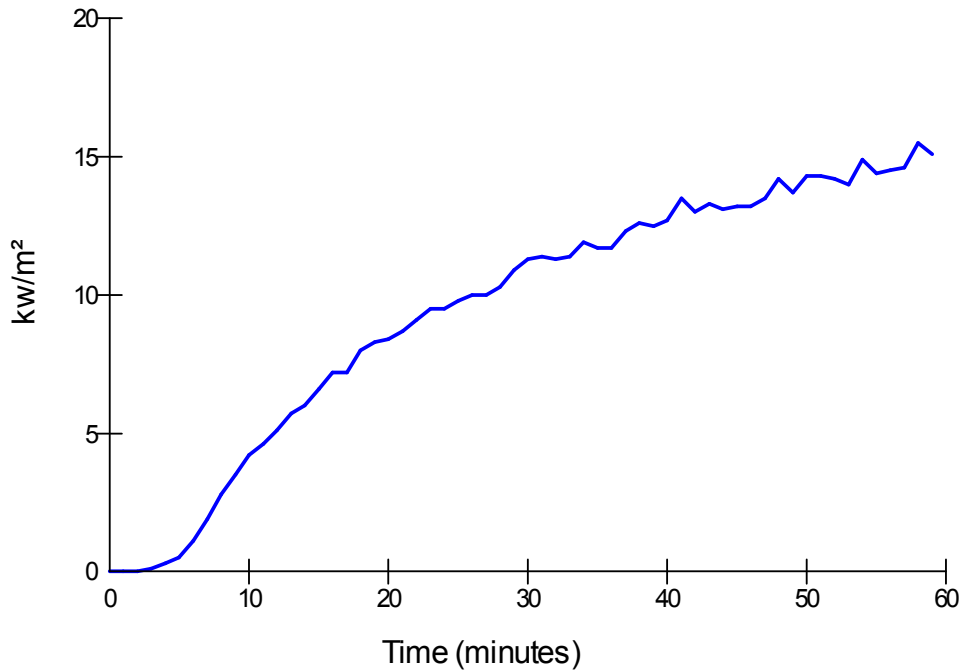


8.5 Radiation

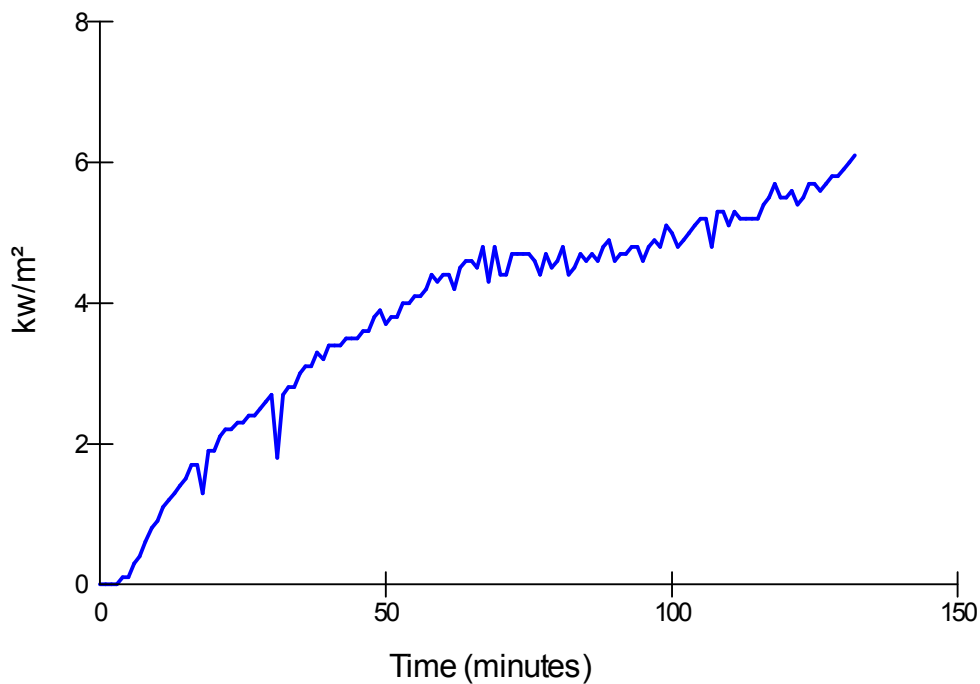
A radiometer was used to measure the radiation 1m away from the specimens.

The results of the radiometer were recorded and tabulated in appendix 2 and are shown graphically below:

Access panel A



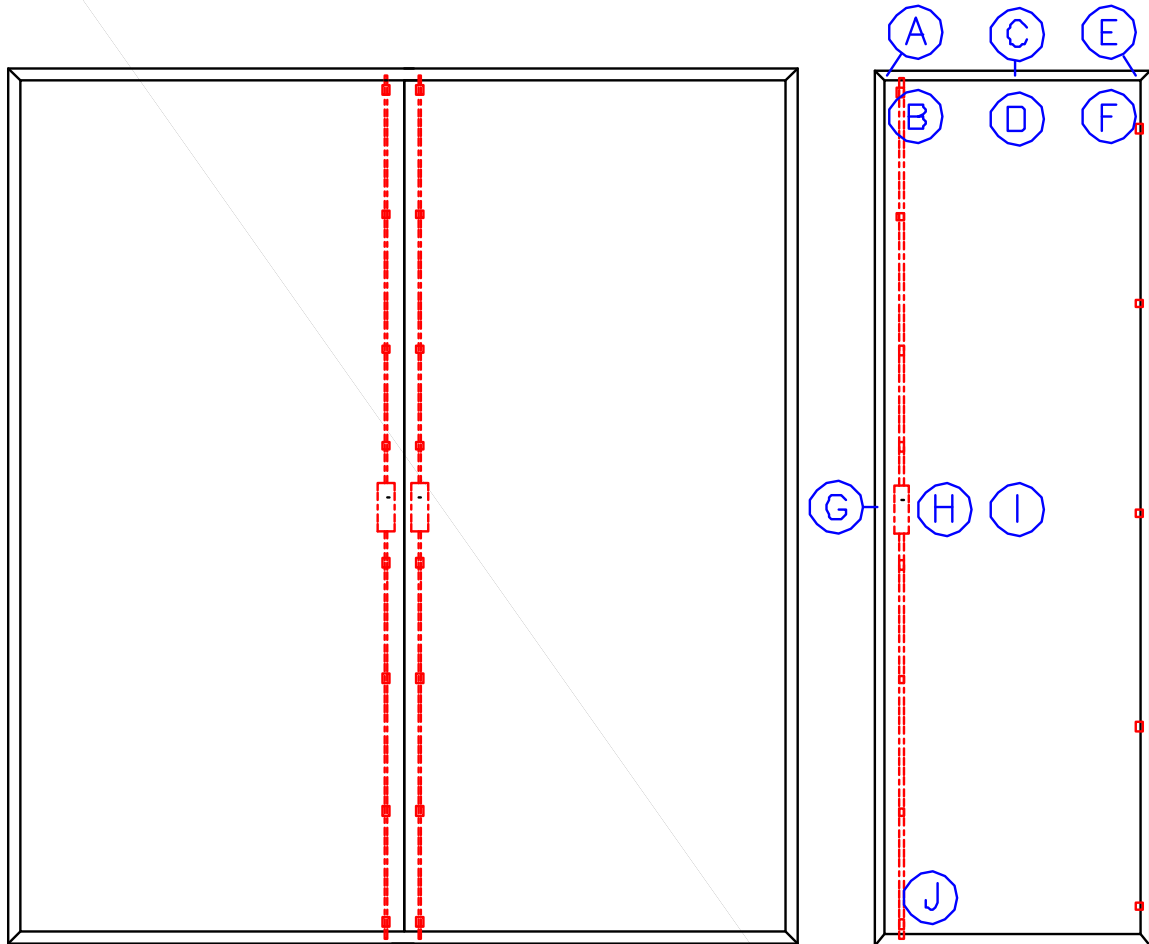
Access panel B



The legal validity of this report can only be claimed on presentation of the complete report.

8.6 Leaf and frame distortion data

The following tables show the distortion in mm with an accuracy of ± 1 mm.
 A positive measurement indicates distortion towards the furnace.
 A negative measurement indicates distortion away from the furnace.



Access panel A – leaves hung to open away from the furnace

Due to the nature of the specimen, distortion measurements could not be taken

Access panel B - leaf (hung on the right and opening away from the furnace)

Time	A	B	C	D	E	F	G	H	I	J
15	-18	-13	-12	-5	-14	-11	-2	0	6	-5
30	-15	-10	-12	-6	-14	-1	-5	-5	-3	-5

9 Observations

All comments relate to the unexposed face unless otherwise specified.

Time (minutes)

00.00	Test started.
03.12	Access panel B, there is smoke issuing from the hanging edge of the leaf.
05.00	Access panel A, there is distortion on the face of the leaves and there is smoke issuing from the centre of the meeting edge of the leaves.
05.06	Access panel B, there is plaster falling away at the frame due to distortion.
12.01	Both access panels, there is distortion at the centre of the leaves, both have buckled and are bending at the centre.
14.03	Access panel B, the plaster is cracking on the panel leaf and continuing to fall off at the frame.
18.56	Access panel B, there is smoke issuing from the head of the leaf from behind the frame, and where the panel leaf is moving in has distorted the frame.
30.00	Access panel A, there is no change in the distortion.
33.34	Access panel B, there is an increase in distortion at the frame head.
45.26	Access panel A, a cotton pad integrity test was performed at the centre of the leaf.
47.34	Access panel A, there is a gap approximately 10mm at the meeting edge of the leaves.
52.03	Access panel A, there is an increase in the gap to approximately 10-15mm at the meeting edge of the leaves.
55.00	Access panel B, thermocouples taken off.
60.00	Access panel A, there are no change of distortions observed. The gap at the meeting edge is unchanged.
62.00	Access panel B, the plaster has fallen away from the leaf.
78.00	Both access panels, there is no change in the distortion.
81.18	Access panel A, there is an increase in the meeting edge gap of approximately 15-18mm at the latch position.

The legal validity of this report can only be claimed on presentation of the complete report.

- 83.14 Access panel A left leaf, there is an increase in the distortion approximately a third of the way down. This has increased the gap at the meeting edge latch position.
- 90.00 Access panel B, there is a glow visible at the top hanging corner of the leaf where the plasterboard has cracked.
- 91.42 Access panel B, there is a glow visible at a crack in the centre of the leaf.
- 92.03 Access panel A left leaf, there is an increase in distortion of the leaf.
- 105.00 Access panel A, there is an increase in the distortion and gap at the meeting edge of the leaves.
- 120.00 No change in the distortion level from either specimen.
- 131.32 No change in the distortion level from either specimen.
- 132.00 Test terminated.

10 Expression of results

Access panel A

Integrity	
Cotton pad	132 (one hundred and thirty two) minutes*
Continuous flaming	132 (one hundred and thirty two) minutes*
Gap gauges	132 (one hundred and thirty two) minutes*
Insulation	The specimen was not evaluated for insulation
Radiation - time to 15kW/m²	57 (fifty seven) minutes

* No failure of the test criteria had occurred at termination of the test at 132 minutes

Access panel B

Integrity	
Cotton pad	132 (one hundred and thirty two) minutes*
Continuous flaming	132 (one hundred and thirty two) minutes*
Gap gauges	132 (one hundred and thirty two) minutes*
Insulation – 1 discrete areas	
Average set	38 (thirty eight) minutes
Maximum ≥ 100mm in from leaf edge	35 (thirty five) minutes
Maximum ≥ 25mm in from leaf edge	18 (eighteen) minutes
Door frame ≥ 180°C temp rise	24 (twenty four) minutes
Door frame ≥ 360°C temp rise	36 (thirty six) minutes
Radiation – time to 15kW/m²	132 (one hundred and thirty two) minutes*


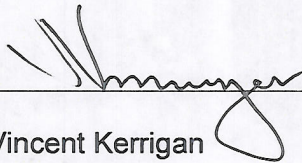
* No failure of the test criteria had occurred at termination of the test at 132 minutes

11 Limitations

The results only relate to the behaviour of the element of construction under the particular conditions of test; they are not intended to be the sole criteria for assessing the potential fire performance of the element in use nor do they reflect the actual behaviour in fires.

The results of this test were obtained using the door to frame gaps recorded in Figure 5 of Appendix 1. The fire resistance performance of doors of this design may change if substantially different gaps are employed.

The specification and interpretation of fire test methods are the subject of ongoing development and refinement. Changes in associated legislation may also occur. For these reasons it is recommended that the relevance of test reports over 5 years old should be considered by the user. BM TRADA will be able to offer, on behalf of the legal owner, a review of the procedures adopted for a particular test to ensure that they are consistent with current practices, and if required may endorse the test report.

Signature:		
Name:	Robert Axe	Vincent Kerrigan
Title:	Lead Technical Officer - Fire	Technical Manager
Date of issue:	7/2/2014	07-02-2014

12 Field of direct application of test results

The results of the test are directly applicable to similar constructions where one or more of the changes listed in BSEN 1634-1: 2008, Clause 13, are made and the construction continues to comply with that appropriate design code for its stiffness and stability. Other changes are not permitted by the document.

A copy of the field of direct application is available from BM TRADA upon request.

Photographs

At start of test



After 30 minutes



The legal validity of this report can only be claimed on presentation of the complete report.

At 60 minutes



After 98 minutes



The legal validity of this report can only be claimed on presentation of the complete report.

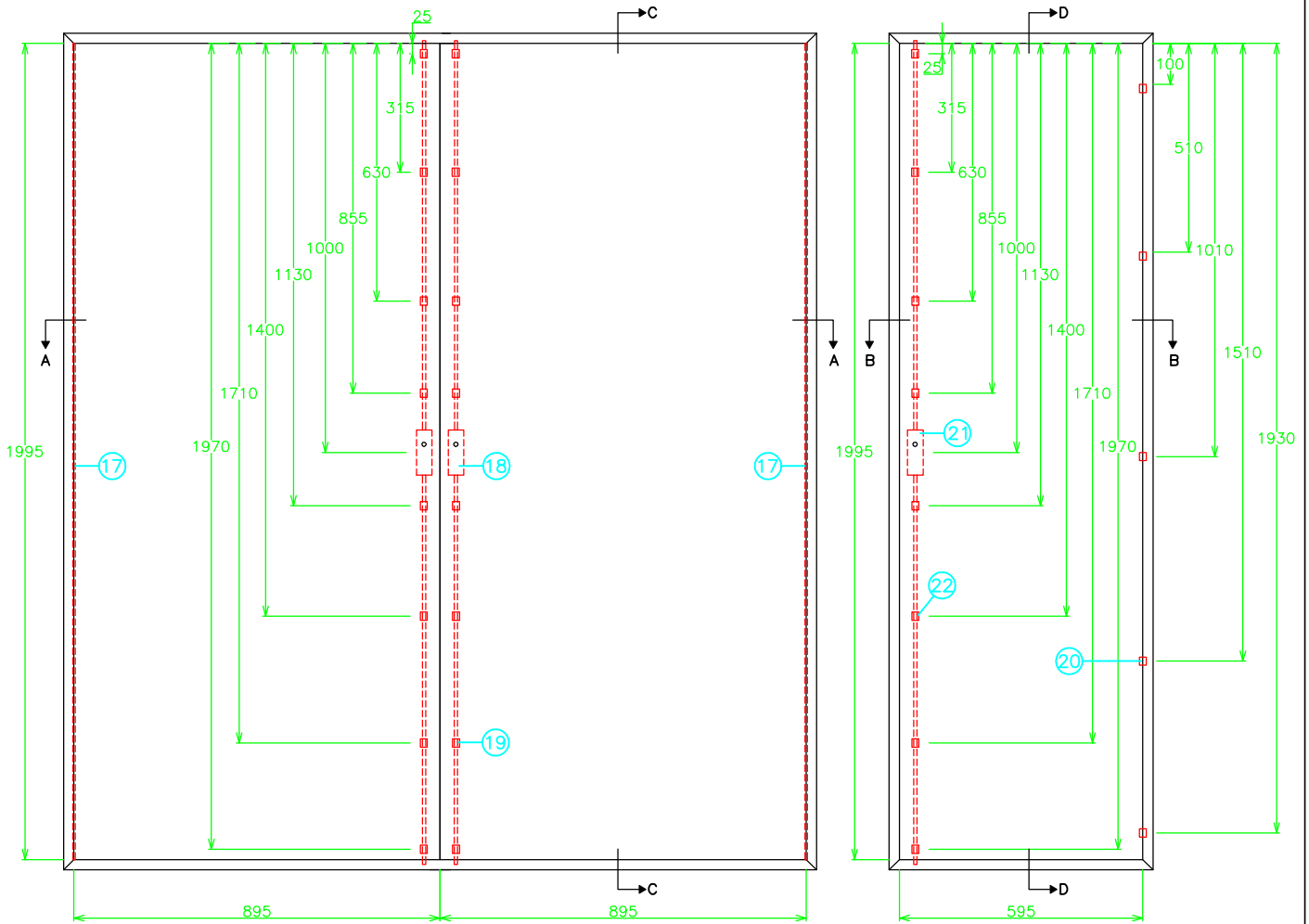
After 121 minutes



Appendix - figures 1 to 6

Access panel A

Access panel B



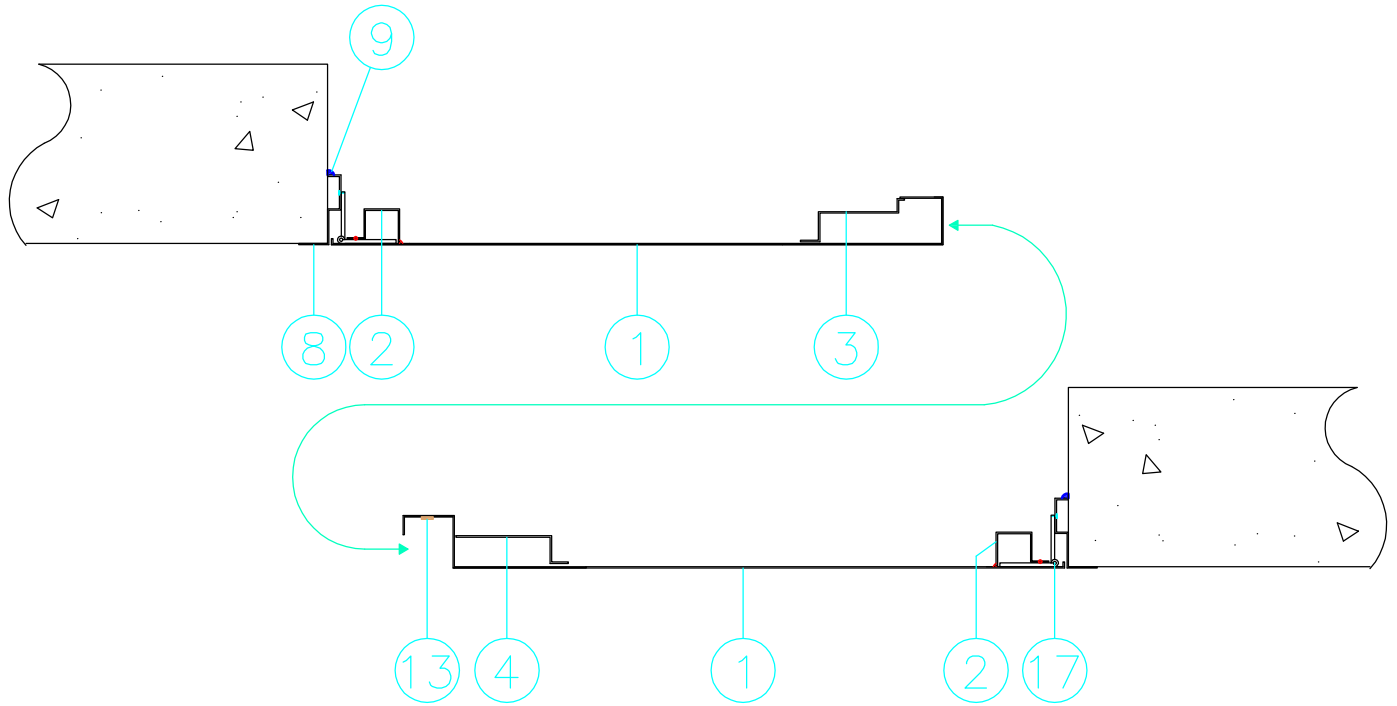
BMTRADA

Chiltern House, Stocking Lane, Hughenden Valley
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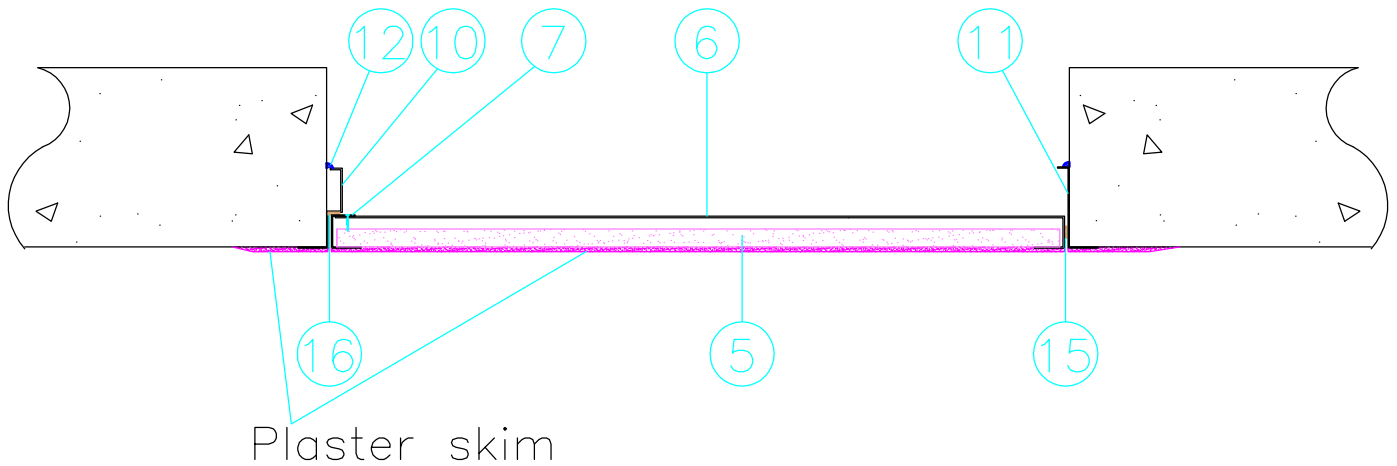
Title Unexposed face elevation showing hardware positions (All dimensions in mm)

Date Drawn 05/08/13	Drawn By ANM	Scale NTS
Project No. Chilt/RF13171 AR1		Appendix 1

Section A-A



Section B-B



BMTRADA

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 High Wycombe, Buckinghamshire, HP14 4ND, UK.
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Title

Horizontal cross-sections
 (All dimensions in mm)

Date Drawn

05/08/13

Drawn By

ANM

Scale

NTS

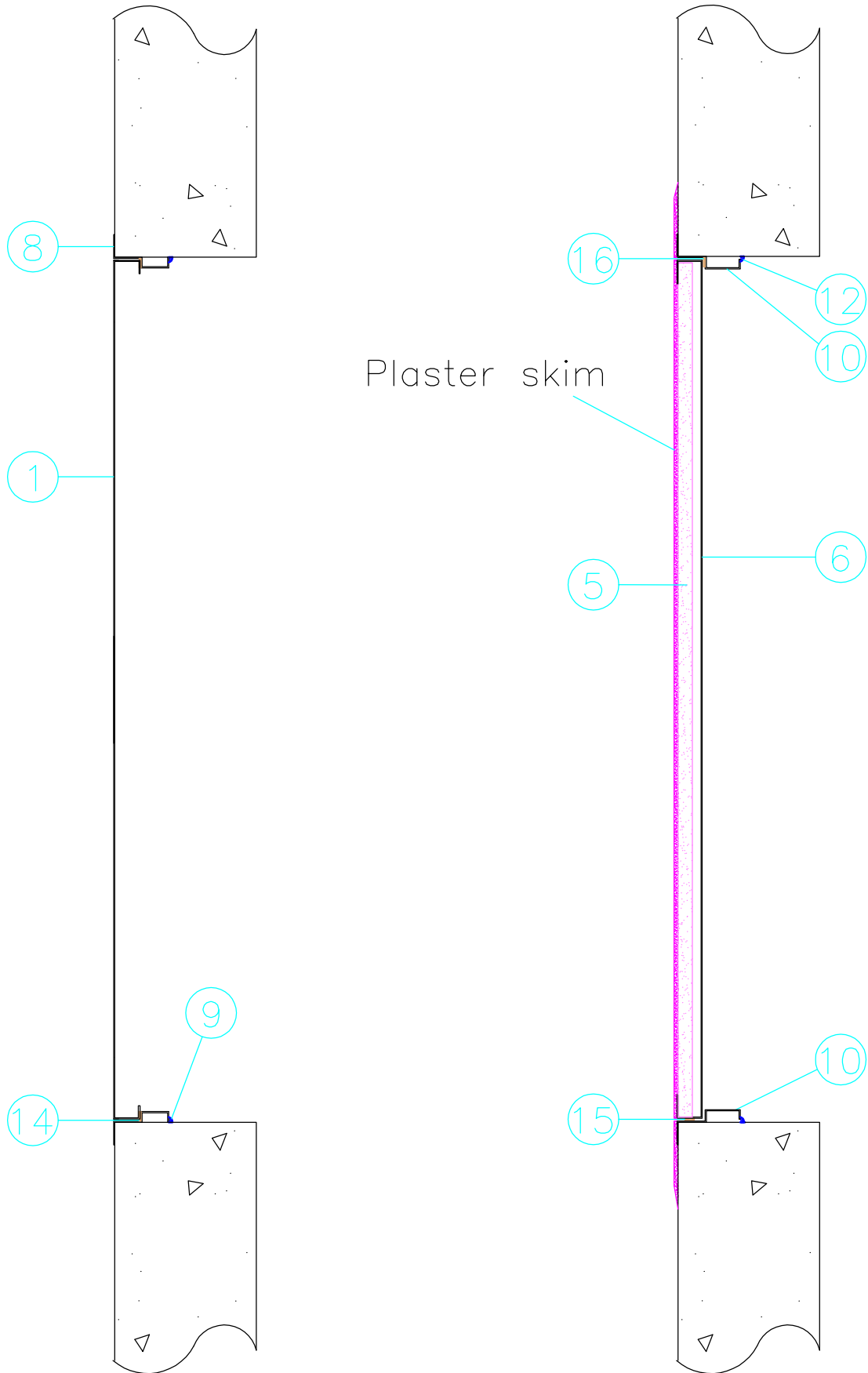
Project No.

Chilt/RF13171 AR1

Appendix 1

Section C-C

Section D-D



BMTRADA

High Wycombe, Buckinghamshire, HP14 4ND, UK.
Tel: +44 (0)1494 569800 Fax: +44 (0)1494 564895

Title

Vertical cross-sections
(All dimensions in mm)

Date Drawn
05/08/13

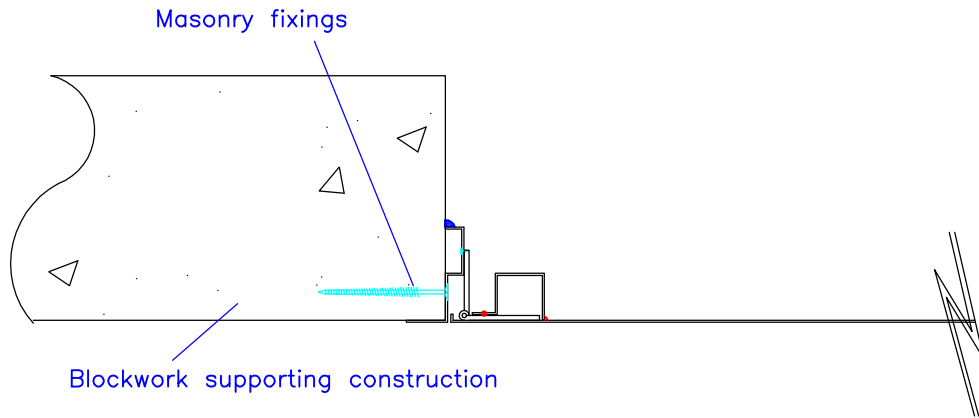
Drawn By
ANM

Scale
NTS

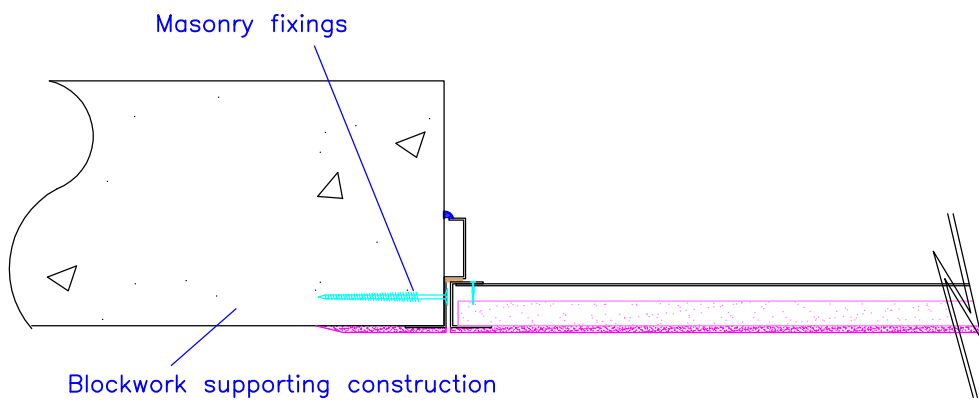
Project No.
Chilt/RF13171 AR1

Appendix 1

Access panel A



Access panel B



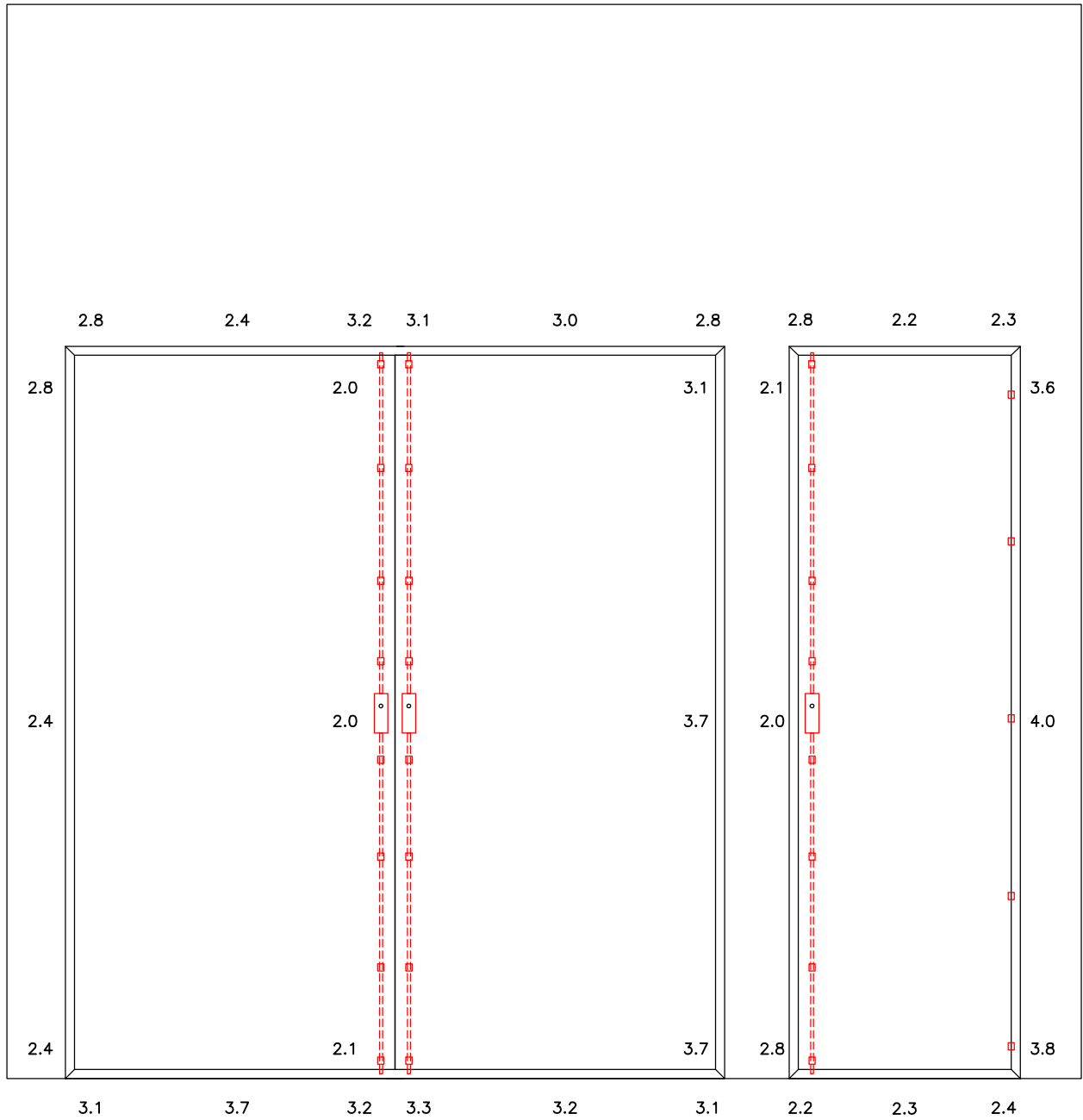
BMTRADA

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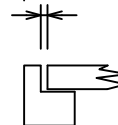
Title Frame to supporting construction
fixing detail
(All dimensions in mm)

Date Drawn 05/08/13	Drawn By ANM	Scale NTS
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Project No. Chilt/RF13171 AR1	Appendix 1
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Gaps Shown



Viewed From Unexposed Face

BMTRADA

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 Tel: +44 (0)1494 569800 Fax: +44 (0)1494 564895

Title
 Panel leaf/frame gaps
 (All dimensions in mm)

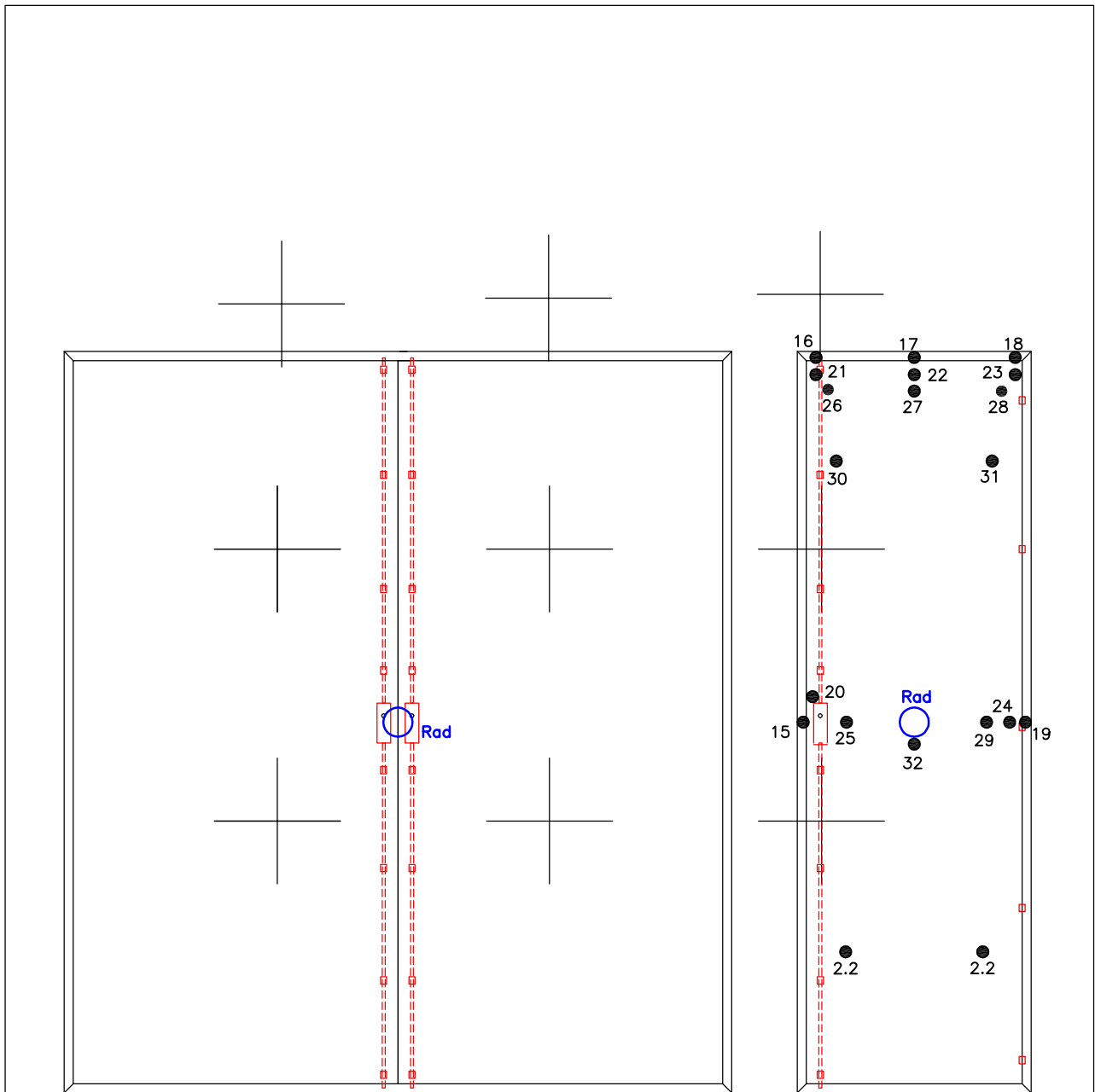
Date Drawn
 05/08/13

Drawn By
 ANM

Scale
 NTS

Project No.
 Chilt/RF13171 AR1

Appendix 1



- ⊕ : Furnace Thermocouples
- : Unexposed Face Thermocouples
- : Radiometer

Viewed From Unexposed Face

BMTRADA

Chiltern House, Stocking Lane, Hughenden Valley
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Tel: +44 (0)1494 569800 Fax: +44 (0)1494 564895

Title
Thermocouple positions
(All dimensions in mm)

Date Drawn
05/08/13

Drawn By
ANM

Scale
NTS

Project No.
Chilt/RF13171 AR1

Appendix 1

Appendix 2 - raw test data (10 pages)

(see figure 6 of appendix 1 for channel locations)

Furnace thermocouples
 Failure time and corresponding thermocouple

Time	Chan 0	Chan 1	Chan 2	Chan 3	Chan 4	Chan 5	Chan 6	Chan 7	Chan 8	Chan 9	Chan 11	Chan 15	Chan 16	Chan 17	Chan 18	Chan 19	Chan 20	Chan 21
min	Pa	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C
0	0	23	24	23	24	25	24	25	25	25	18	19	19	20	20	19	19	19
1	-1.8	262	254	203	355	283	207	236	298	307	18	20	23	21	22	30	19	21
2	-3.2	293	278	242	343	320	332	295	337	346	18	21	27	24	25	21	20	28
3	4	365	350	325	473	419	406	386	433	434	18	24	36	28	30	34	23	37
4	3.7	533	535	451	583	553	544	497	556	543	18	31	51	35	36	27	27	51
5	1.9	563	559	488	595	581	581	535	582	567	18	37	61	45	44	24	33	67
6	5.8	605	608	529	628	615	609	569	613	597	18	44	70	58	52	23	42	83
7	5.3	663	664	568	657	645	639	603	648	629	19	53	77	70	60	24	52	92
8	5.2	684	690	594	674	665	657	625	668	649	19	60	80	79	67	25	62	96
9	5.9	701	705	609	686	678	670	639	680	663	19	68	82	88	74	25	69	98
10	5.7	713	717	625	695	688	679	654	691	674	19	75	82	92	79	26	79	99
11	5.9	724	727	636	703	697	687	664	699	681	19	79	82	91	83	32	88	99
12	5.7	726	733	642	713	703	693	673	708	691	19	84	82	92	86	32	92	99
13	5.6	741	748	659	728	715	705	687	721	705	19	89	83	92	87	31	93	104
14	5.7	749	760	672	738	726	714	700	734	716	19	92	84	91	88	34	94	117
15	5.6	762	775	677	742	735	724	709	742	723	19	95	86	93	90	35	94	132
16	5.5	772	793	695	756	748	735	721	752	735	19	96	89	92	90	34	95	149
17	5.7	782	802	705	764	757	745	731	761	745	19	95	91	93	91	38	95	170
18	5.7	783	805	713	772	764	753	739	769	752	19	97	96	92	91	44	95	197
19	5.7	794	814	718	776	769	760	747	776	761	19	104	104	93	93	45	96	231
20	5.6	795	818	725	786	777	767	752	780	765	19	113	118	94	93	47	96	268
21	5.6	808	828	739	795	787	777	762	790	775	19	123	135	95	94	48	96	304

Time	Chan 0	Chan 1	Chan 2	Chan 3	Chan 4	Chan 5	Chan 6	Chan 7	Chan 8	Chan 9	Chan 11	Chan 15	Chan 16	Chan 17	Chan 18	Chan 19	Chan 20	Chan 21
min	Pa	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C
22	5.8	822	837	751	799	794	785	771	796	782	19	135	153	96	94	52	93	334
23	5.5	830	842	758	808	800	791	776	803	789	19	148	171	100	95	54	93	361
24	5.7	828	846	768	811	805	795	782	809	796	19	160	192	103	96	59	97	385
25	5.9	830	851	770	817	809	802	788	814	801	19	174	208	108	101	93	104	407
26	4.3	837	857	780	823	817	808	794	820	807	19	187	222	111	110	110	118	425
27	3.9	843	856	785	828	822	812	798	823	811	19	199	232	116	122	110	137	438
28	3.9	842	862	789	833	823	818	804	829	816	19	213	239	121	134	114	155	446
29	4.7	855	875	799	837	833	826	810	834	822	19	232	243	127	146	127	171	452
30	4.6	859	874	807	846	839	831	818	842	829	19	253	245	132	157	133	192	459
31	4.8	863	880	813	853	843	836	823	845	834	20	275	247	138	170	137	215	466
32	4.8	868	882	818	857	848	839	827	850	839	20	299	247	143	182	144	235	472
33	5.1	874	893	821	857	853	846	833	854	844	20	320	246	149	196	134	251	475
34	5	876	895	829	863	856	849	837	858	848	20	337	244	153	212	143	267	479
35	5.2	882	900	836	865	860	855	839	861	850	20	352	243	159	224	133	284	481
36	5.1	883	904	841	871	863	858	844	865	855	20	366	243	165	234	127	298	485
37	5.1	888	901	844	875	866	863	848	869	859	20	381	241	169	242	128	318	486
38	5.4	891	909	850	878	871	866	851	872	862	20	394	244	173	251	137	331	488
39	5.7	897	914	859	882	877	871	856	877	867	20	409	246	179	258	146	342	489
40	4.4	899	914	863	889	881	876	862	882	872	20	417	246	184	265	149	354	489
41	4.3	907	922	867	889	886	880	864	885	874	20	421	246	189	272	150	360	488
42	4.1	907	921	869	893	888	883	868	888	879	20	424	245	193	279	154	365	488
43	4.2	908	925	875	896	889	885	873	891	882	20	430	243	196	283	165	371	488
44	4.3	914	933	877	897	893	890	875	894	885	20	434	242	206	279	176	375	492
45	4.3	918	933	881	902	896	893	878	897	888	20	439	239	210	269	172	379	492
46	4.2	918	935	885	905	898	895	881	900	890	20	444	236	213	262	168	384	491
47	4.3	925	943	890	908	902	900	886	904	895	20	451	235	215	262	166	390	491
48	4.4	930	948	895	911	907	906	890	908	898	20	457	231	217	259	179	397	491
49	4.5	929	947	896	915	909	906	893	910	903	21	462	228	216	256	205	401	487

Time	Chan 0	Chan 1	Chan 2	Chan 3	Chan 4	Chan 5	Chan 6	Chan 7	Chan 8	Chan 9	Chan 11	Chan 15	Chan 16	Chan 17	Chan 18	Chan 19	Chan 20	Chan 21
min	Pa	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C
50	4.2	934	948	904	918	913	910	897	913	906	21	470	225	217	257	206	406	487
51	4.3	938	953	906	920	916	912	899	915	906	21	480	223	219	256	208	410	487
52	4.2	938	950	907	926	917	916	901	919	911	21	487	222	221	257	211	419	489
53	4.5	941	958	911	925	919	918	903	921	912	21	491	222	223	257	213	428	489
54	4	943	961	915	926	922	921	907	924	915	21	495	225	226	259	212	440	493
55	3.9	948	963	921	931	927	925	909	925	917	21	497	225	228	260	208	445	495
56	3.9	947	964	922	934	929	928	912	929	920	21	500	205	67	138	27	455	498
57	3.8	950	969	924	936	931	930	914	930	923	22	-	-	-	-	-	-	-
58	3.9	953	969	927	936	931	933	917	933	926	22	-	-	-	-	-	-	-
59	4	957	972	932	941	936	936	920	937	928	22	-	-	-	-	-	-	-
60	4.2	960	979	935	940	938	939	923	938	931	22	-	-	-	-	-	-	-
61	4	962	982	938	945	941	941	923	940	931	22	-	-	-	-	-	-	-
62	4.2	965	983	942	944	942	944	927	942	935	22	-	-	-	-	-	-	-
63	5	969	986	948	948	946	946	931	947	940	22	-	-	-	-	-	-	-
64	4.9	971	989	950	952	949	948	934	949	942	22	-	-	-	-	-	-	-
65	4.9	972	992	953	953	951	953	938	952	945	22	-	-	-	-	-	-	-
66	4.1	977	993	954	957	954	953	938	953	946	22	-	-	-	-	-	-	-
67	4.3	977	996	957	958	955	958	940	956	949	22	-	-	-	-	-	-	-
68	4.1	980	998	960	961	957	960	943	958	952	22	-	-	-	-	-	-	-
69	4	983	1000	962	961	959	961	944	959	952	22	-	-	-	-	-	-	-
70	4.1	986	1002	964	964	962	963	946	961	954	22	-	-	-	-	-	-	-
71	4.1	988	1003	966	966	964	965	949	963	957	23	-	-	-	-	-	-	-
72	4.1	987	1004	968	967	965	967	951	965	958	23	-	-	-	-	-	-	-
73	3.9	988	1009	970	971	967	970	953	967	961	23	-	-	-	-	-	-	-
74	4	991	1010	972	970	969	970	956	969	963	23	-	-	-	-	-	-	-
75	4	989	1010	975	977	973	974	957	972	966	23	-	-	-	-	-	-	-
76	4	994	1015	979	973	973	976	959	973	967	23	-	-	-	-	-	-	-
77	4	995	1014	978	981	975	977	961	975	969	23	-	-	-	-	-	-	-

Time	Chan 0	Chan 1	Chan 2	Chan 3	Chan 4	Chan 5	Chan 6	Chan 7	Chan 8	Chan 9	Chan 11	Chan 15	Chan 16	Chan 17	Chan 18	Chan 19	Chan 20	Chan 21
min	Pa	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C
78	4.1	999	1021	982	977	977	980	963	977	972	23	-	-	-	-	-	-	-
79	4	999	1017	984	980	979	981	965	978	971	23	-	-	-	-	-	-	-
80	4	1005	1021	987	982	981	983	966	980	973	23	-	-	-	-	-	-	-
81	4	1004	1024	987	984	983	985	969	983	977	23	-	-	-	-	-	-	-
82	4.1	1007	1021	990	989	985	986	970	984	977	23	-	-	-	-	-	-	-
83	4.3	1007	1027	992	987	986	990	972	985	980	24	-	-	-	-	-	-	-
84	4.1	1010	1028	995	990	989	990	973	987	980	24	-	-	-	-	-	-	-
85	4.3	1012	1031	995	990	989	994	977	990	985	24	-	-	-	-	-	-	-
86	4.1	1012	1030	996	995	992	995	978	992	985	24	-	-	-	-	-	-	-
87	4.1	1015	1030	997	996	994	998	980	992	987	24	-	-	-	-	-	-	-
88	4.1	1017	1035	1000	996	995	1000	982	995	991	24	-	-	-	-	-	-	-
89	4.1	1018	1036	1003	997	996	1002	983	996	990	24	-	-	-	-	-	-	-
90	4	1019	1037	1004	1000	998	1004	985	998	993	24	-	-	-	-	-	-	-
91	4.3	1020	1040	1005	1001	999	1004	986	999	993	24	-	-	-	-	-	-	-
92	4.2	1021	1039	1008	1003	1001	1006	988	1000	994	24	-	-	-	-	-	-	-
93	4.1	1025	1045	1008	1003	1002	1007	989	1002	997	23	-	-	-	-	-	-	-
94	4.1	1025	1042	1011	1006	1004	1008	990	1003	998	23	-	-	-	-	-	-	-
95	4.3	1026	1044	1011	1007	1005	1010	992	1005	1000	23	-	-	-	-	-	-	-
96	4.3	1027	1046	1014	1008	1006	1011	994	1007	1003	23	-	-	-	-	-	-	-
97	3.9	1031	1046	1015	1009	1007	1013	996	1008	1003	23	-	-	-	-	-	-	-
98	4.2	1032	1051	1016	1009	1008	1015	997	1009	1004	23	-	-	-	-	-	-	-
99	4.2	1032	1051	1018	1011	1011	1016	997	1010	1005	23	-	-	-	-	-	-	-
100	4.1	1034	1054	1019	1015	1013	1018	1000	1013	1008	23	-	-	-	-	-	-	-
101	3.9	1038	1055	1025	1016	1014	1020	1003	1014	1010	23	-	-	-	-	-	-	-
102	3.9	1039	1058	1026	1017	1017	1022	1003	1017	1011	23	-	-	-	-	-	-	-
103	3.7	1042	1059	1027	1019	1018	1024	1005	1018	1013	24	-	-	-	-	-	-	-
104	3.6	1040	1058	1030	1020	1019	1024	1007	1019	1016	24	-	-	-	-	-	-	-
105	3.7	1042	1061	1030	1020	1020	1026	1008	1020	1016	24	-	-	-	-	-	-	-

Time	Chan 0	Chan 1	Chan 2	Chan 3	Chan 4	Chan 5	Chan 6	Chan 7	Chan 8	Chan 9	Chan 11	Chan 15	Chan 16	Chan 17	Chan 18	Chan 19	Chan 20	Chan 21
min	Pa	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C
106	3.7	1041	1058	1031	1024	1021	1027	1009	1021	1017	24	-	-	-	-	-	-	-
107	3.7	1043	1059	1032	1025	1023	1027	1010	1022	1018	24	-	-	-	-	-	-	-
108	3.5	1044	1063	1033	1024	1024	1030	1012	1024	1020	24	-	-	-	-	-	-	-
109	3.7	1047	1062	1035	1025	1024	1031	1012	1025	1021	24	-	-	-	-	-	-	-
110	3.6	1047	1066	1038	1027	1024	1031	1014	1025	1021	24	-	-	-	-	-	-	-
111	3.7	1050	1066	1035	1028	1026	1033	1015	1027	1023	24	-	-	-	-	-	-	-
112	3.8	1050	1066	1040	1029	1028	1033	1017	1028	1023	24	-	-	-	-	-	-	-
113	4.1	1053	1071	1041	1031	1030	1037	1020	1031	1026	24	-	-	-	-	-	-	-
114	4.1	1051	1069	1043	1033	1030	1037	1021	1031	1028	24	-	-	-	-	-	-	-
115	4	1055	1072	1044	1035	1032	1040	1022	1034	1029	24	-	-	-	-	-	-	-
116	3.9	1059	1071	1046	1035	1033	1041	1023	1034	1031	24	-	-	-	-	-	-	-
117	3.9	1056	1073	1044	1037	1034	1040	1023	1035	1031	24	-	-	-	-	-	-	-
118	4.2	1059	1077	1050	1037	1036	1043	1025	1037	1034	24	-	-	-	-	-	-	-
119	4.4	1062	1077	1049	1040	1038	1044	1026	1039	1034	24	-	-	-	-	-	-	-
120	4.3	1065	1082	1055	1038	1039	1046	1029	1040	1036	24	-	-	-	-	-	-	-
121	4.3	1063	1081	1053	1041	1040	1047	1030	1041	1038	24	-	-	-	-	-	-	-
122	4.4	1063	1081	1054	1045	1041	1049	1031	1043	1039	24	-	-	-	-	-	-	-
123	4.6	1065	1080	1056	1044	1042	1049	1031	1043	1041	24	-	-	-	-	-	-	-
124	4.2	1066	1085	1058	1043	1043	1051	1033	1044	1041	24	-	-	-	-	-	-	-
125	4.3	1067	1084	1060	1045	1043	1050	1034	1045	1042	24	-	-	-	-	-	-	-
126	4.4	1069	1086	1061	1045	1044	1052	1034	1045	1042	24	-	-	-	-	-	-	-
127	4.5	1069	1087	1062	1047	1045	1053	1036	1047	1044	24	-	-	-	-	-	-	-
128	4.9	1070	1087	1067	1049	1048	1056	1039	1051	1048	24	-	-	-	-	-	-	-
129	4.9	1074	1088	1065	1055	1050	1057	1040	1051	1049	24	-	-	-	-	-	-	-
130	4.8	1076	1090	1068	1054	1052	1059	1041	1052	1049	25	-	-	-	-	-	-	-
131	4.8	1077	1092	1068	1052	1052	1060	1042	1054	1052	25	-	-	-	-	-	-	-
132	5.1	1077	1093	1070	1054	1053	1060	1043	1055	1052	25	-	-	-	-	-	-	-

Time	Chan 22	Chan 23	Chan 24	Chan 25	Chan 26	Chan 27	Chan 28	Chan 29	Chan 30	Chan 31	Chan 32	Chan 33	Chan 34	Chan 35	Chan 36	Mean
min	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	kw/m ²	kw/m ²	°C
0	20	20	19	19	20	20	20	19	19	19	19	18	19	0	0	18
1	21	22	22	19	20	20	20	19	19	19	19	18	19	0	0	18
2	25	27	31	19	20	20	21	19	19	19	19	18	19	0	0	18
3	30	33	37	20	22	22	21	20	20	20	19	19	19	0.1	0	19
4	37	41	52	21	25	24	23	20	22	21	20	20	20	0.3	0.1	20
5	46	51	67	21	29	27	24	21	25	22	20	21	21	0.5	0.1	21
6	61	59	77	23	34	32	27	22	30	25	21	22	23	1.1	0.3	24
7	74	65	83	25	42	41	31	24	38	29	23	25	27	1.9	0.4	28
8	89	74	87	28	52	53	37	28	50	36	27	30	32	2.8	0.6	35
9	97	87	88	32	63	66	47	33	64	46	34	38	41	3.5	0.8	44
10	99	96	90	39	73	77	61	42	76	61	43	48	54	4.2	0.9	56
11	99	97	91	48	79	82	69	53	82	72	53	59	67	4.6	1.1	66
12	100	97	93	57	83	86	76	63	85	79	63	68	76	5.1	1.2	74
13	100	97	95	64	86	87	78	71	86	82	70	76	81	5.7	1.3	79
14	101	97	96	70	87	88	78	76	86	84	75	81	84	6	1.4	82
15	106	98	97	75	88	89	81	80	87	85	78	84	87	6.6	1.5	84
16	112	99	98	78	88	89	80	83	87	86	79	87	88	7.2	1.7	85
17	117	106	99	80	89	90	82	84	88	87	80	87	89	7.2	1.7	86
18	118	108	103	81	89	89	79	85	87	88	79	87	90	8	1.3	86
19	121	112	108	82	90	91	84	86	88	88	81	86	91	8.3	1.9	86
20	124	115	113	82	90	91	84	86	88	88	81	85	91	8.4	1.9	86
21	130	120	121	82	90	91	86	86	89	89	81	84	91	8.7	2.1	86
22	141	128	129	82	91	91	85	85	89	89	81	84	91	9.1	2.2	86
23	152	136	138	81	92	91	86	85	89	89	81	84	92	9.5	2.2	87
24	167	145	149	81	92	91	84	85	89	89	81	84	91	9.5	2.3	86
25	187	159	162	81	93	91	87	85	89	90	82	87	92	9.8	2.3	88
26	204	177	176	81	96	93	86	85	89	90	82	92	91	10	2.4	88
27	220	201	192	81	102	99	86	85	92	90	83	96	92	10	2.4	90

Time	Chan 22	Chan 23	Chan 24	Chan 25	Chan 26	Chan 27	Chan 28	Chan 29	Chan 30	Chan 31	Chan 32	Chan 33	Chan 34	Chan 35	Chan 36	Mean
min	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	kw/m ²	kw/m ²	°C
28	236	231	208	82	109	105	85	85	98	90	82	97	93	10.3	2.5	92
29	252	258	223	82	117	113	86	86	107	91	84	97	98	10.9	2.6	95
30	268	281	240	82	125	117	89	86	117	92	84	97	102	11.3	2.7	98
31	290	302	256	83	129	122	94	87	122	97	85	97	108	11.4	1.8	101
32	322	321	271	84	132	127	100	87	125	104	85	97	114	11.3	2.7	105
33	364	336	287	86	143	138	109	88	128	111	86	96	118	11.4	2.8	107
34	408	348	304	87	164	156	113	90	139	116	87	96	122	11.9	2.8	112
35	433	357	321	88	191	176	117	92	154	121	86	95	129	11.7	3	117
36	437	364	339	90	228	215	122	93	172	127	89	101	145	11.7	3.1	126
37	429	371	356	91	257	247	125	94	206	132	88	104	161	12.3	3.1	138
38	425	377	373	90	284	276	133	94	235	143	89	107	194	12.6	3.3	153
39	427	381	393	92	311	303	146	94	261	159	88	109	225	12.5	3.2	168
40	433	385	413	97	332	324	159	99	286	178	87	111	251	12.7	3.4	182
41	436	389	426	104	348	340	186	105	307	215	89	113	276	13.5	3.4	200
42	437	391	436	109	360	349	213	110	322	245	91	117	299	13	3.4	214
43	436	390	352	114	369	353	234	116	332	271	94	121	316	13.3	3.5	226
44	441	379	324	118	376	349	238	122	339	292	99	128	330	13.1	3.5	237
45	441	364	320	120	378	337	234	126	343	308	102	139	339	13.2	3.5	246
46	442	354	318	123	378	327	223	129	346	317	107	156	346	13.2	3.6	254
47	443	353	319	125	377	324	231	132	348	323	112	177	350	13.5	3.6	262
48	442	347	361	128	375	316	226	137	348	321	116	201	351	14.2	3.8	267
49	443	342	134	131	371	305	217	147	347	316	119	221	353	13.7	3.9	271
50	444	342	89	142	368	298	217	163	348	315	122	238	354	14.3	3.7	275
51	445	340	84	155	364	288	210	176	348	314	124	252	355	14.3	3.8	278
52	445	341	83	168	362	283	212	203	347	314	126	262	356	14.2	3.8	281
53	446	341	84	196	358	278	205	230	343	311	130	270	356	14	4	282
54	451	341	84	221	357	276	200	252	338	313	138	273	356	14.9	4	283
55	456	341	81	240	354	273	200	269	329	308	152	275	355	14.4	4.1	283

Time	Chan 22	Chan 23	Chan 24	Chan 25	Chan 26	Chan 27	Chan 28	Chan 29	Chan 30	Chan 31	Chan 32	Chan 33	Chan 34	Chan 35	Chan 36	Mean
min	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	kw/m ²	kw/m ²	°C
56	429	157	60	257	355	272	198	258	325	163	163	275	353	14.5	4.1	255
57	-	-	-	-	-	-	-	-	-	-	-	-	-	14.6	4.2	-
58	-	-	-	-	-	-	-	-	-	-	-	-	-	15.5	4.4	-
59	-	-	-	-	-	-	-	-	-	-	-	-	-	15.1	4.3	-
60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.4	-
61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.4	-
62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.2	-
63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.5	-
64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.6	-
65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.6	-
66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.5	-
67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-
68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.3	-
69	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-
70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.4	-
71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.4	-
72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.7	-
73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.7	-
74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.7	-
75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.7	-
76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.6	-
77	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.4	-
78	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.7	-
79	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.5	-
80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.6	-
81	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-
82	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.4	-
83	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.5	-

Time	Chan 22	Chan 23	Chan 24	Chan 25	Chan 26	Chan 27	Chan 28	Chan 29	Chan 30	Chan 31	Chan 32	Chan 33	Chan 34	Chan 35	Chan 36	Mean
min	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	kw/m ²	kw/m ²	°C
84	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.7	-
85	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.6	-
86	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.7	-
87	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.6	-
88	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-
89	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.9	-
90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.6	-
91	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.7	-
92	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.7	-
93	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-
94	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-
95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.6	-
96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-
97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.9	-
98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-
99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.1	-
100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-
101	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-
102	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.9	-
103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-
104	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.1	-
105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-
106	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-
107	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-
108	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.3	-
109	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.3	-
110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.1	-
111	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.3	-

Time	Chan 22	Chan 23	Chan 24	Chan 25	Chan 26	Chan 27	Chan 28	Chan 29	Chan 30	Chan 31	Chan 32	Chan 33	Chan 34	Chan 35	Chan 36	Mean
min	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	kw/m ²	kw/m ²	°C
112	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-
113	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-
114	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-
115	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-
116	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.4	-
117	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.5	-
118	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.7	-
119	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.5	-
120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.5	-
121	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.6	-
122	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.4	-
123	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.5	-
124	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.7	-
125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.7	-
126	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.6	-
127	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.7	-
128	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-
129	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-
130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.9	-
131	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-
132	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.1	-